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NEUROLOGICAL STAMP

Paul Ehrlich (1854–1915) and Emil Adolf Von Behring (1854–1917)

The German physician, bacteriologist, and chemist Paul Ehrlich shared with Ilya Metchnikoff the Nobel Prize in 1908 for his contributions to immunity. The climax of the 19th century's united attack on microbes was Paul Ehrlich's discovery of Salvarsan, which gave rise to the concept of a chemotherapeutic "magic bullet" against specific infectious organisms. Beginning with dyes and later expanding his studies to include arsenical compounds, Ehrlich and his coworkers modified the chemical structure of numerous molecules to produce effective drugs against trypanosome and later spirochete infections. They tested hundreds of compounds before they came on one, number 606, that Ehrlich thought was the chemotherapeutic agent

he was searching for. Clinical tests confirmed the potential of the drug in treating syphilis and trypanosomiasis. The discovery was announced in 1910. Ehrlich named the drug Salvarsan

In 1905 *Treponema pallidum* was discovered by Schaudinn and Hoffman in Berlin. They showed it to be the cause of syphilis. Ehrlich synthesised the chemical, which would destroy the causative organism but spare the patient. About 3 decades later, the advent of sulphonamides for the treatment of bacterial infections was a direct, although delayed outgrowth of Ehrlich's demonstration that dyes could be antibacterial agents. When penicillin was introduced, Ehrlich's drugs against syphilis were abandoned, but he had set in motion the activities of the 20th century that were to revolutionise the therapy of microbial diseases.

Ehrlich was nominated again for a Nobel Prize in 1912 and 1913 for his contributions to chemotherapy. The value of Salvarsan was still, however, in dispute at that time, and then in 1915 Ehrlich died. Ehrlich was philatelically honoured in 1954, along with the German immunologist Behring (Stanley Gibbons 1123, Scott 722).

Among Behring's contributions was the demonstration that injections of blood taken from an animal with tetanus could confer immunity to the disease in other animals. He found the same for diphtheria and this led in collaboration with Paul Ehrlich to the development of an antitoxin for human patients. This treatment was first used in 1901 and subsequently caused a dramatic fall in mortality from diphtheria. Behring was awarded the first Nobel Prize in physiology or medicine in 1901. In 1913 he introduced a refinement of the immunisation technique by using toxin-antitoxin mixtures to immunise against diphtheria.

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